

Application Serial No: 10/067,218
Attorney Docket No.: 51995 (ACT-214)

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for forming a V-groove in a substrate having a varying width, comprising the steps of:
 - dry etching at least one pit in the substrate;
 - coating sides of the at least one pit with a material which is resistant to a wet etchant; and
 - wet etching sections of the substrate, wherein the at least one pit projects into the sections.
2. (Currently Amended) The method of claim 1, wherein said dry etching step comprises dry etching first, second and third pits in the substrate.
3. (Currently Amended) The method of claim 2, wherein said wet etching step comprises wet etching a first section of the substrate between the first and second pits and wet etching a second section of the substrate between the second and third pits.
4. (Original) The method of claim 3, wherein the first section has a different width than the second section.
5. (Original) The method of claim 4, wherein the first section is wider than the second section.
6. (Original) The method of claim 1, wherein said dry etching comprises at least one of the group consisting of deep reactive ion etching, ion beam milling, laser-chemical etching, laser ablation, and laser drilling.
7. (Currently Amended) The method of claim 1, wherein said coating step comprises coating sides of the at least one pit with a material comprising silicon nitride.
8. (Currently Amended) The method of claim 1, wherein said coating step comprises coating sides of the at least one pit with a material comprising silicon dioxide.

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9. (Original) The method of claim 1, further comprising removing said coating.
10. (Original) The method of claim 1, wherein said wet-etching sections comprises wet-etching V-grooves.
11. (Original) The method of claim 1, wherein said wet-etching sections comprises wet-etching U-grooves.
12. (Original) The method of claim 1, further comprising smoothing corners of the at least one pit.
13. (Original) The method of claim 12, wherein said smoothing comprises etching.
14. (Original) The method of claim 12, wherein said smoothing comprises thermal oxidation.
15. (Currently Amended) A tapered groove formed in a <100> silicon substrate, comprising:
a pit in a <100> silicon substrate, wherein the pit extends into the groove such that the pit inhibits the formation of a wedge; and
at least two wet-etched sections in the <100> silicon substrate, wherein a first said wet-etched section has a different width than a second said wet-etched section, and wherein the pit extends into the first and second wet-etched sections.
16. (Currently Amended) The groove of claim 15, further comprising first, second and third pits in the substrate.
17. (Original) The groove of claim 16, wherein said first wet-etched section is between said first and second pits and said second wet-etched section is between said second and third pits.
18. (Original) The groove of claim 17, wherein said first wet-etched section is wider than said second wet-etched section.
19. (Currently Amended) The groove of claim 16, 15, wherein said pits have a diamond-shaped profile.
20. (Original) The groove of claim 19, wherein said pits include wings.

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21. (Original) The groove of claim 15, wherein said pits are shaped to inhibit wedges.
22. (Original) The groove of claim 21, wherein corners of said pits are smoothed.
23. (Currently Amended) An optical coupler, comprising:
a silicon substrate having a tapered groove formed of a plurality of spaced apart dry-etched pits joined together with wet-etched sections of varying width; and
an optical fiber mounted in said wet-etched sections of said tapered groove.
24. (Original) The optical coupler of claim 23, wherein said optical fiber is bowed.
25. (Original) The optical coupler of claim 23, wherein said substrate comprises first, second and third pits.
26. (Original) The optical coupler of claim 25, wherein said substrate comprises first and second wet-etched sections, said first wet-etched section is between said first and second pits and said second wet etched section is between said second and third pits.
27. (Original) The optical coupler of claim 26, wherein said first wet-etched section is wider than said second wet-etched section.
28. (Original) The optical coupler of claim 23, wherein said pits have a diamond-shaped profile.
29. (Original) The optical coupler of claim 28, wherein said pits include wings.
30. (Original) The optical coupler of claim 23, wherein said pits are shaped to inhibit wedges.
31. (Original) The optical coupler of claim 30, wherein corners of said pits are smoothed.
32. (New) The optical coupler of claim 23, wherein the silicon substrate is a <100> silicon substrate.
33. (New) The optical coupler of claim 23, wherein the dry-etched pits have a width greater than the width of the adjoining wet-etched sections.